SynFlex Elektro GmbH
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SHTherm® 210 Glide

- Enamelled round cu.wire, thermo-resistant and self lubricating
- Insulated with theic-mod. polyesterimide
- plus polyamid-imide
- Class 200

Attributes

"SHTherm® 210 GLIDE" is a highly thermo-resistant enamelled copper wire of heat performance class N with a wide range of good and very good quality features. As it is a triple-coat wire its insulation film consists of 3 different coatings on top of one another. These ensure: a very good permanent thermal and overload resistance, excellent resistance to chemical attacks e.g. by alkalines, washing and cleaning agents, impregnating varnishes and resins, sealing compounds, thinners, solvents and refrigerants as well as their vapours, an excellent mechanical abrasion resistance.

The third layer is functionalized regarding best gliding properties and gives excellent windability, high filling factors, high process speeds and reduced dust during winding operation. The very good surface properties lead to reduced stress on the wire during processing.
In combination with aluminium wires this property gives additional benefits. Compatibility with common resins have to be proofed individually. Reduced mechanical force during winding. The reduced coefficient of friction prevents damage to the wire during winding and thus maintains the insulation properties of the wire.

Application

E-Mobility, control gears, electric motors, electrical tools, magnetic coils, pump drives, refrigerators, transformers, generators

Standards

IEC / DIN EN 60317-13
NEMA MW 35-C / 73-C
UL approved

Delivery forms

Grade 1: 0.150 - 2.500 mm
Grade 2: 0.200 - 2.500 mm
(> 2.500 mm on request)

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Updated 05/18

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Typical properties of enamelled round copper wire 0.500 mm, with insulation film grade 1

Mechanical	Unit of measure	Set value	Actual value
Outer diameter with varnish	mm	min. 0.524 - max. 0.544	as set value
Bare wire diameter	mm	0.495-0.505	as set value
Elongation and adhesion		mandrel diameter: 0.500 mm	1 x d /10 % pre-elongation
Scrape resistance	N	≥ 3.950	≥ 7.500
Pencil hardness of varnish		/	4H - 5H
Elongation at break	%	≥ 28	≥ 38
Coefficient of friction	µ	/	≤ 0.110

Thermal	Unit of measure	Set value	Actual value
Temperature index TI		200	210
Cut through temperature (pre-heated block)	°C	320	≥ 360
Solderability		no	no
Heat shock at 220 °C (no cracks in varnish coat after winding)		mandrel diameter: 1.120 mm	1 x d /10 % pre-elongation
Dielectric loss factor (bending point)	(°C) (tan δ)	/	≥ 185

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Electrical	Unit of measure	Set value	Actual value
Dielectric strength RT	kV	≥ 2.4 (twist)	≥ 3 (cylinder)
High voltage discontiniuties 750V		≤ 10 on 30 m	≤ 7 on 100 m
Electrical conductivity	MS/m	58 - 59	≥ 58.5

Chemical	Set value	Actual value
Pencil hardness (storage in standard solvent ½ h / 60 °C)	min. H	3H - 5H
Pencil hardness (storage in alcohol ½ h / 60 °C)	min. H	3H - 5H
Resistance to commercial impregnants^(1)	/	yes
Resistance to commercial refrigerants (1)	/	yes
Resistance to dry transformer oils (1)	/	yes
Resistance to hydraulic oils (1)	/	yes

Index

(1) Due to the variety of individual applications we cannot make any generally binding commitments regarding the compatibility. We recommend testing compatibility with the materials being used.

Temperature index (TI)

The temperature index is a dimensionless value and represents the long term thermal resistance or the admissible ageing temperature of the enamelled magnet wire in °C for an extrapolated life span of 20,000 h. The temperature index does not necessarily correspond to the thermal class.

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Thermal class	Enamelled magnet wire according to IEC 60317-.. or DIN EN 60317-... are to be rated as Class X, if (a) their long term thermal performance demonstrably proves an extrapolated life span of 20,000 h at an ageing temperature of min. X °C (tests preferably to be made on enamelled magnet wires with a nominal diameter of 1.00 mm Grade 2) and (b) the heat shock resistance complies with temperatures of 25 or 20°C above the rated thermal class.

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